

8 DECENT WORK AND  
ECONOMIC GROWTH



# ASEAN Data Science Explorers Regional Face-Off

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## Agricultural Production Enhancement in ASEAN by Smart Farming



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With rising populations, increasing food prices and environmental concerns, Asia's agricultural sector faces a raft of challenges  
(**Asian Development Bank**)

(1) More than **2.2 billion** people in the Asia rely on agriculture for their livelihoods.



(2) Rice is by far the most important crop throughout Asia - **90%** of the world's production and consumption occurs in this region.

(3) In 2011, it was estimated biotech crops were grown on **160 million hectares** of land - making it the fastest adopted crop technology.



# Demand of Food & Agricultural Sustainable Goals

## There are 4 key sustainability goals:

Satisfy human food needs, and contribute to biofuel needs

Enhance environmental quality

Sustain the economic viability of agriculture

Enhance the quality of life for farmers, farm workers and society as a whole

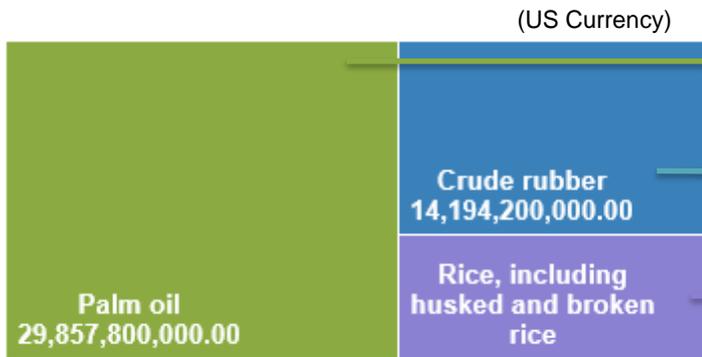
**FAO** predicts that Food production must increase by

**70%** by **2050**

# Agricultural Products & Its Value Added Products in ASEAN

## I. Most Agricultural Products Export (2014)

Total of 53,102,000,000.00 (US Currency)

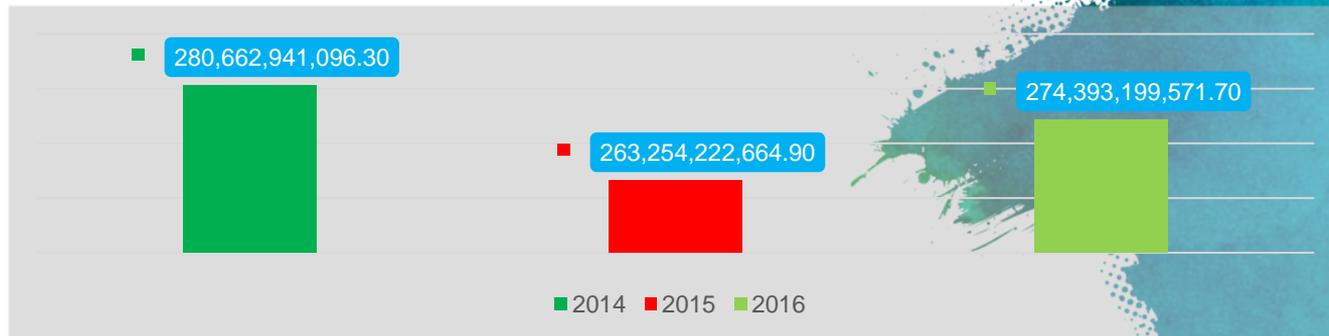


ASEAN produces **89%** of global production

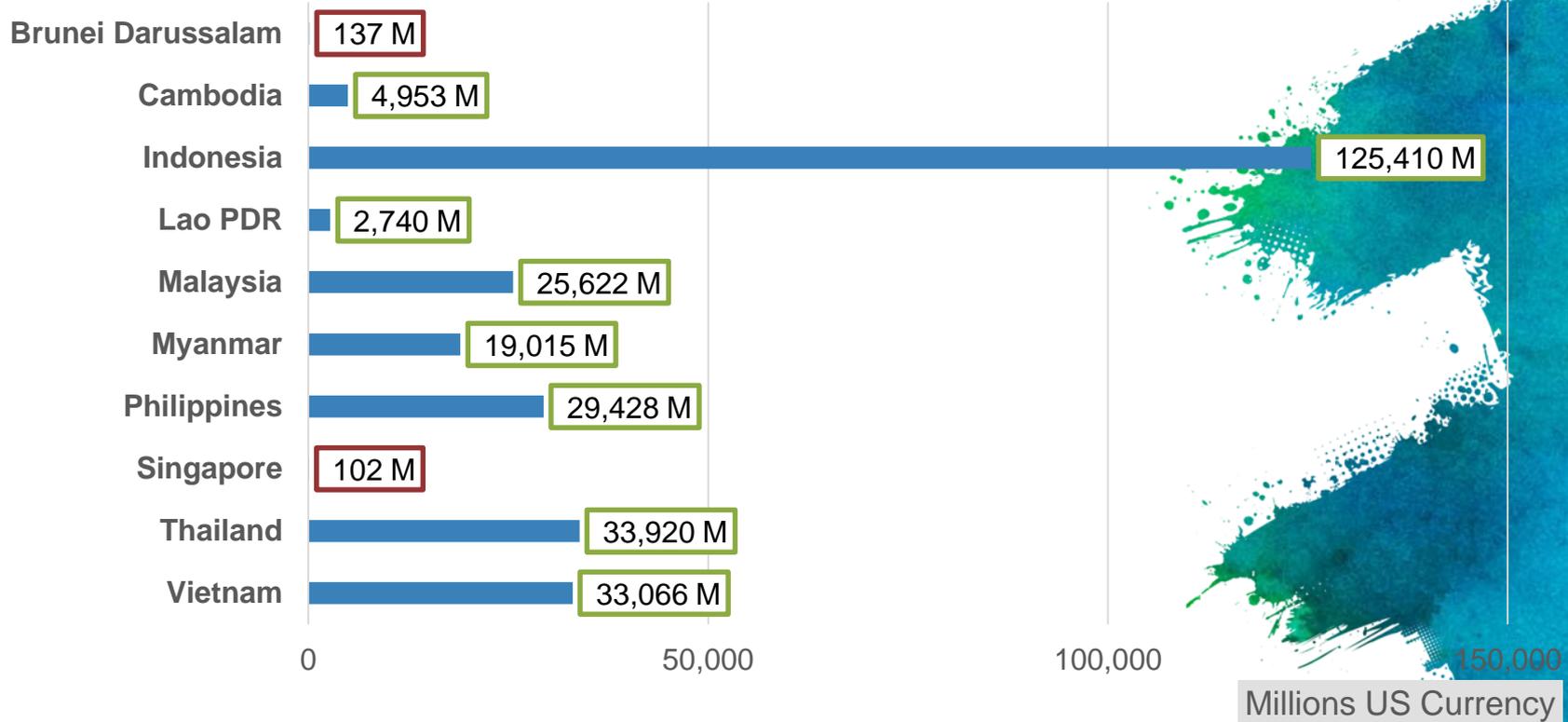
ASEAN produces **75%** of global production

ASIA covers **90%** of global production and consumption

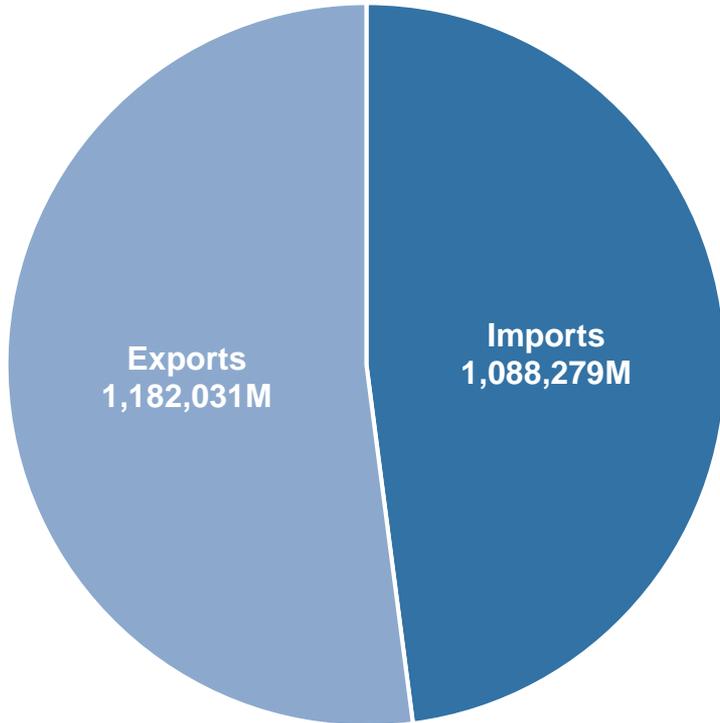
## II. Agricultural Value Added in current USD (2014, 2015 and 2016)



# Agricultural Value Added in US Dollar in 2016



# Total EXPORT and IMPORT Value IN 2015



## Balance of Trade

- Export amount is slightly greater number than Import amount

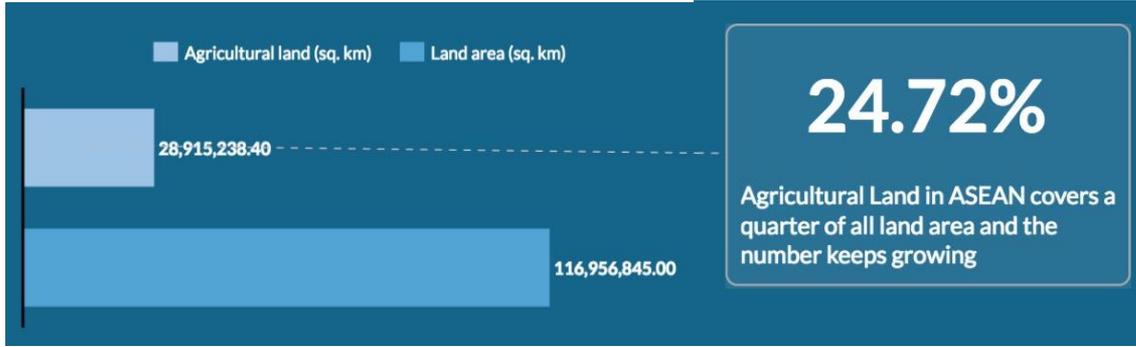
## Trading Partner

- China, USA, EU 28, Japan accounts top four of goods exporting destinations
- Export in Intra ASEAN itself is comparable to top four exporting destinations

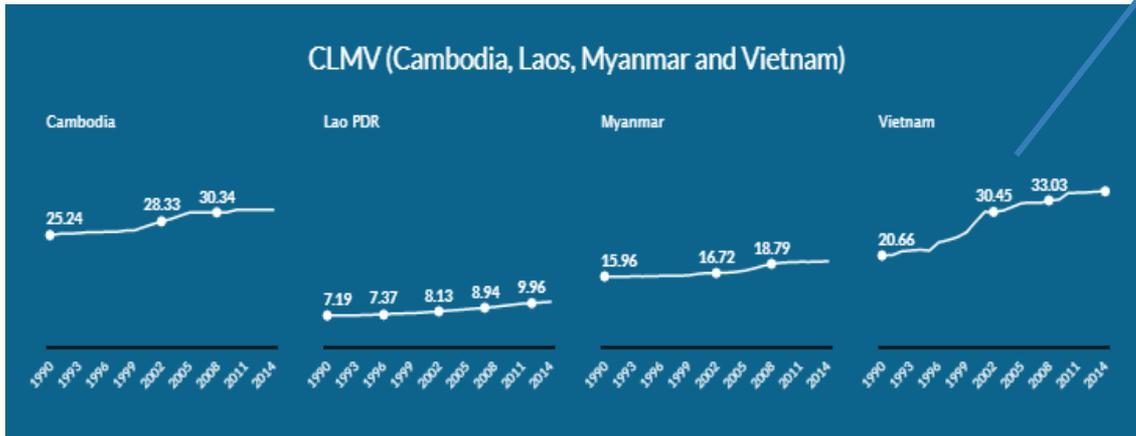
## Compelling Reasons

1. ASEAN exported **77,418 million U.S Dollar** of total Agricultural Products in 2014
2. ASEAN has been the **4th** trading partner with the United States
3. ASEAN occupied only **24 %** agricultural land of total land area

# Agricultural Land



Since 1990 to 2014, **Vietnam** had expands its agricultural land almost **15%**, currently at **35.07%**



# Suggestions & Solutions

## 1. Smart Farming with IOT (Internet of Things)

- Autonomous farming can reduce the cost of labor and eliminate environmental limitations
- Smart Farming can help farmers track progress, analyze, and make adjustments to their crops remotely



## 2. Vertical Farming

- Adapting it with **Organic Farming, Vertical Farming** will exponentially increase the production in both quantity and quality with less resources
- Along with **Vertical / Hydroponic Farming** will exponentially reduce the cost of fertilizer, water and land needed to grow small crops.
- **Vertical Farming** will enable farmer to use less land area.



# Conclusion



Demand in food and agricultural products



Positive data in agricultural production



Technology enhancement in productivity

# References

- **ASEAN Secretariat**

ASEAN Exports of Selected Agricultural Products and Inputs by Countries, 2014

- **World Bank**

World Development Indicator

**Other minor sources:** Food and Agricultural Organization of US, United Nations, brightagrotech.com, aerofarms.com , etc.